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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/798,642	03/10/2004	Donald L. Mittendorf	H0005380--1180	6693

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EXAMINER

ZIMMERMAN, JOHN J

ART UNIT	PAPER NUMBER
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1775

DATE MAILED: 09/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/798,642

Applicant(s)

MITTENDORF, DONALD L.

Examiner

John J. Zimmerman

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-39 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 11-29 and 34-39 is/are allowed.
- 6) ☒ Claim(s) 1-10 and 30-33 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 20040310.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

## FIRST OFFICE ACTION

### *Information Disclosure Statement*

1. The Information Disclosure Statement filed March 10, 2004 has been considered. An initialed form PTO-1449 is enclosed with this First Office Action.

### *Claim Rejections - 35 USC § 112*

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 1, 3-4 and 6-10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

4. In claim 1, line 6, it is not clear where (or how) a "rhenium/ruthenium alloy" occurs in the composite. No prior positive description of such an alloy or a step of necessarily forming such an alloy occurs prior to the "cooling" step. Incorporation of the description of claims 2 or 5 into independent claim 1 will overcome this rejection. Claims 3-4 and 6-10 are dependent on claim 1 incorporate this indefiniteness.

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***Claim Rejections - 35 USC § 102/103***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1-9 and 30-33 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Mittendorf (U.S. Patent 5,209,388).

8. Mittendorf (e.g. Figure 2; column 2, lines 17-60; claims 1-17) discloses providing a carbon substrate (10, 12) with a first rhenium coating (17) and then further depositing a ruthenium coating (19) followed by heating the composite at 2400 °C for 15 minutes (e.g. see column 3, lines 1-9). The applicant discloses that heating such a composite at 2400 °C for 15 minutes will cause diffusion alloying (e.g. see applicant's disclosure at paragraph [0035]) and therefore it is clear that Mittendorf is causing diffusion alloying even though Mittendorf may not describe it as such. The rhenium layer is deposited by chemical vapor deposition using chloride or fluoride precursors in a thickness of 0.003 inch (e.g. column 2, lines 32-38) and the ruthenium

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coating is deposited from a solution of  $\text{RuCl}_3$  in a thickness of about 100 microinches (e.g. column 2, lines 43-51). Although Mittendorf may not recite the presence of pores in the carbon substrate or the rhenium layer, the presence of some microscopic pores in a commercially available carbon substrate and also pores in a CVD rhenium coating would be inherent.

Regarding claims reciting wicking or pore penetration (e.g. claims 3, 4), the melting caused by the heating step of Mittendorf would inherently result in these mechanisms. Patent and

Trademark Office can require applicants to prove that prior art products do not necessarily or inherently possess characteristics of claimed products where claimed and prior art products are identical or substantially identical, or are produced by identical or substantially identical

processes; burden of proof is on applicants where rejection based on inherency under 35 U.S.C.

§ 102 or on prima facie obviousness under 35 U.S.C. § 103, jointly or alternatively, and Patent and Trademark Office's inability to manufacture products or to obtain and compare prior art

products evidences fairness of this rejection, *In re Best, Bolton, and Shaw*, 195 USPQ 431

(CCPA 1977). Regarding any method limitations in product claims 30-33, when there is a

substantially similar product, as in the applied prior art, the burden of proof is shifted to the

applicant to establish that their product is patentably distinct not the examiner to show that the

same process of making, see *In re Brown*, 173 U.S.P.Q. 685, and *In re Fessmann*, 180 U.S.P.Q.

324. Although it is noted that Mittendorf uses additional steps (e.g. pressing a second coated carbon body and bonding), the "comprising" language of the pending claims allows for

additional unrecited steps and additional unrecited components, *In re Horvitz*, 78 U.S.P.Q. 79

(CCPA 1948); *Ex parte Gottzein et al.*, 168 U.S.P.Q. 176 (PTO Bd. App. 1969).

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***Allowable Subject Matter***

9. Claims 11-29 and 34-39 are allowed. Claim 10 would be allowable if rewritten to overcome the rejection under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims. Although Mittendorf '388 discloses depositing a rhenium layer and a ruthenium layer on a carbon substrate and heating, the reference does not disclose or make obvious the depositing a ruthenium layer and then a rhenium layer as required by method claims 15-21. Claims reciting a further rhenium layer over the rhenium/ruthenium alloy layer (e.g. claim 10-14, 22-29 and 34-39) are allowed because the prior art of record does not disclose or make obvious the deposition of a further rhenium layer.

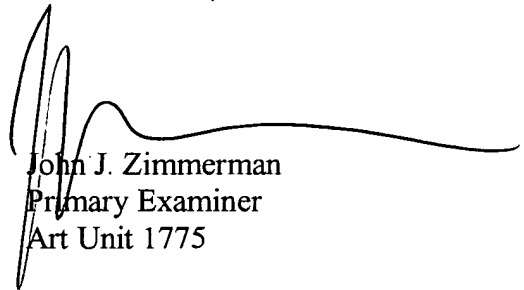
***Conclusion***

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The additional references of record serve to further establish the level of ordinary skill in the art at the time the invention was made.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to John J. Zimmerman whose telephone number is (571) 272-1547. The examiner can normally be reached on 8:30am-5:00pm, M-F. Supervisor Deborah Jones can be reached on (571) 272-1535. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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12. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



John J. Zimmerman  
Primary Examiner  
Art Unit 1775

jjz  
September 15, 2005